

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Butterfly Valves**

with type designation(s)
G-SH / G-SO, G16-SH / G16-SO

Issued to

BF Kogyo Kaisha Ltd., Isohara Works
Kitaibaraki city, Ibaraki Pref., Japan

is found to comply with

DNV GL class programme DNVGL-CP-0186 – Type approval – Valves
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.

Type:	Temperature range:	Max. working press.:	Sizes:
G-SH / G-SO	0°C to 150°C	10 bar	100A, 125A, 150A, 200A, 250A, 300A, 350A
G16-SH / G16-SO	0°C to 150°C	16 bar	100A, 125A, 150A, 200A, 250A, 300A, 350A

Issued at **Høvik** on **2019-01-07**

This Certificate is valid until **2023-12-30**.

for **DNV GL**

DNV GL local station: **Yokohama**

Approval Engineer: **Iselinn Vindstad**

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Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Four types of wafer type butterfly valves.

Materials:

- Body and disc: Austenitic Stainless Steel Casting: SCS13, SCS14 or SCS16 according to G 5121
- Shaft: Austenitic Stainless Steel SUS304, SUS316 or SUS316L
- Seat: PTFE

Limitation

The valves covered by this certificate are not:

- Considered fire safe
- To be used as ESD-valves (emergency shut down)
- To be installed in LNG/LPG applications

Materials chosen for the specific system shall be suitable for the intended medium and environmental conditions.

Austenitic stainless steels are not to be used in direct contact with seawater.

The approval does not include any operating gear for remote control of the valves.

Type Approval documentation

Type Tests carried out

Burst pressure test

Each valve body shall be subjected to a hydrostatic pressure test at;

- 1.5 times the allowable pressure at room temperature

In addition each valve shall be subject to seat leakage testing as follows:

- 1.1 times the design pressure in the valve flow direction.

Testing shall follow procedures and acceptance criteria in EN 12266-1 (leakage rate A).

Valves fitted on ship's side and bottom are also to be hydrostatically tested at a pressure equal to 5 bar applied independently on each side of the closed disc.

Certification

Valve bodies shall be delivered with material certificates in accordance with DNV GL Ship Pt.4 Ch.6 Sec.2 Table 3. Materials with VL and W certificates shall be manufactured in a foundry approved by the Society. DNV GL product certificates are required for valves with DN>100 and design pressure ≥ 16 bar, and for ship side valves where DN>100 regardless of pressure. For other valves a manufacturer's product certificate may be accepted.

Marking of product

For traceability to this type approval, the final products are to be marked with:

- manufacturer's name or trade mark
- valve type designation
- size
- maximum design pressure and temperature
- arrow to indicate direction of flow on one way flow valves.

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.